

SOLID WASTE OVERVIEW

– R1

Eco-efficiency resources for the food processing industry

Save waste – save money

Solid wastes resulting from the manufacture of food products typically include packaging, organic food and office waste. They are generated either during production or during the transport, storage or handling of raw materials and products.

The true cost of solid waste

The cost of solid waste is more than just the transport and landfill gate fee, it includes:

- the cost of raw material
- the loss of product
- the loss of production costs both in raw materials and processing (including water and energy)
- labour costs
- treatment costs
- collection costs
- disposal costs.

Survey results published in the Australian Food and Grocery Council 2005 Environmental Report indicate that most food processors are aware of the value of managing their waste with almost 90 per cent of the waste and by-products from the industry being reused or recycled. In 2005 that equated to 8kg of waste for every tonne of finished product.¹ For a company that produces 100 tonnes of product per day that is a total of 800kg of waste sent to landfill every day.

The Australian Food and Grocery Council 2005 Environmental survey indicated that about 13 per cent of waste is sent to landfill.² The table below suggests that there are still opportunities in the food processing industry to reduce waste production and increase recycling rates.

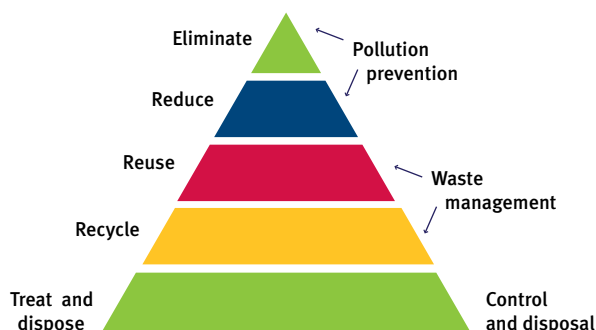
¹ The Australian Food and Grocery Council, 2005, The Australian Food and Grocery Council 2005 Environmental Report. www.afgc.org.au/cmsDocuments/EnvironmentReport2005_v2.pdf

² The Australian Food and Grocery Council, 2005, The AFGC 2005 Environmental Report.



Table 1: Waste to landfill per tonne of finished product in 2005³

Waste type	kg of waste to landfill per tonne of finished product
Paper and paper product	6
Processed fruit and vegetables	16
Meat and meat products	38
Other foods	12
Flour and cereal foods	3
Medicinal and pharmaceutical	10
Dairy products	9
Bakery products	21
Home and personal care products	10
Beverages	2



REDUCED LOSS OF RAW INGREDIENTS

Priestley's Gourmet Delights, a bakery product manufacturer, had difficulty removing the residue from raw liquid material bladder containers such as syrups and condensed milk, wasting approximately 10kg per tonne of raw liquid materials. A heat pad was installed in each container, activated once the container was close to empty, warming the residue and reducing losses. A roller was installed to squeeze out the last of the product saving approximately \$20,000 per year. At a cost of \$2,000 to install the equipment the system paid for itself in two months. (Priestley's Gourmet Delights is an ecoBiz participant.)

Incentives to reduce and use solid waste

The economic, environmental and social benefits of reducing and utilising solid waste include:

- reduced costs
- revenue from increased yield
- reduced waste transport and associated air emissions
- reduced landfill costs
- revenue from by-products recovered from what would otherwise be solid waste
- demonstrated social responsibility, such as food donations to welfare agencies.

³ The Australian Food and Grocery Council, 2005, The AFGC 2005 Environmental Report.

Waste minimisation hierarchy approach

The waste minimisation hierarchy approach can be used to identify waste efficiency opportunities. It is important to keep in mind that it is better to eliminate or reduce the cause of the waste than it is to reuse or recycle.

Packaging

Packaging is material used for the containment of raw materials or processed goods. Although packaging contributes to waste prevention by protecting product and reducing spoilage, it requires resources and if not reused or recycled must be discarded. Table 2 provides a list of common types of packaging.

Survey results published in the Australian Food and Grocery Council 2005 Environmental Report indicate that almost 80 per cent of the companies surveyed highlighted packaging or waste management as a priority for their company over the next five years. Over 50 per cent of the companies had already made improvements across a range of areas with the exception of refill packaging where food safety and distribution issues were a concern.

Table 2: Common types of packaging

Type of packaging	Example	Characteristics
BOTTLES AND JARS		
Glass	Jam jars	Recyclable, cheap, non-reactive
Polyethylene terephthalate (PET)	Soft drink bottles	Recyclable, expensive, clear, tough
Polyethylene – high density (HDPE)	Milk bottles	Recyclable, common, opaque
Polyvinyl chloride – unplasticised (UPVC)	Cordial and juice bottles	Recyclable, hard, rigid plastic that may be clear
CANS		
Aluminium	Beverage cans	Recyclable, reacts with acid unless coated
Tin or tin coated steel	Fruit, fish, oil and meat cans	Recyclable, cheap
Steel	Coffee tins	Recyclable, needs lacquer to protect contents
BOXES		
Cardboard	Cereal boxes	Recyclable, relatively cheap, compostable, combustible
CONTAINERS		
Polypropylene (PP)	Ice-cream containers	Not easy to recycle, hard but flexible
Polystyrene (PS)	Yoghurt containers	Not easy to recycle, rigid and brittle
Polystyrene – expandable (EPS)	Meat trays, takeaway food containers	Not easy to recycle, foamed, cheap, lightweight, thermal insulation
FLEXIBLE		
Cellophane – regenerated cellulose	Clear film	Biodegradable, heat resistant, good oxygen and moisture barrier
Polyvinyl chloride – plasticised (PPVC)	Wrap, bags and tubing	Not easy to recycle, flexible, clear, elastic
Polypropylene (PP)	Potato crisp bags	Not easy to recycle, strong but flexible

The National Packaging Covenant

The National Packaging Covenant (NPC) is a voluntary scheme that was launched in 1999 to encourage industry to consider the effect of their packaging along the supply chain. The NPC was strengthened in 2005 with the introduction of more stringent national targets to be achieved by 2010 under the National Environment Protection Measures (NEPM) for used packaging material. These targets include an increase in post-consumer packaging recycling from 48 per cent to 65 per cent and no further increases in packaging waste to landfill. Companies who do not sign up to the NPC may have regulatory obligations under the NEPM to reduce packaging similar to those who voluntarily sign up to the covenant. Whilst the targets are generally the same under the covenant or the NEPM, the covenant provides signatories with more flexibility to meet their targets.

The covenant seeks signatories from all parts of the packaging chain, including not only food processors but also raw material suppliers, designers, packaging manufacturers, retailers, collection agencies and government. Signatories of the NPC agree to adopt policies based on shared responsibility, product stewardship and produce publicly available annual plans that seek to improve environmental outcomes of their packaging. For more information visit: National Packaging Covenant www.packagingcovenant.org.au

National Environment Protection Measures (NEPM) for used packaging material
www.ephc.gov.au/nepms/upm/upm_intro.html

Solid waste fact sheets

This series of fact sheets details opportunities to reduce, reuse and recycle solid waste. Guidance on the management and reduction of packaging waste is provided in separate fact sheets due to the significance of the issue to food processing facilities. The fact sheets presented in this series are:

- R1 – Solid waste overview
- R2 – Reducing solid waste
- R3 – Reusing solid waste and product recovery
- R4 – Recycling solid waste
- R5 – Reducing packaging
- R6 – Reusing and recycling packaging

This series of fact sheets provides examples and suggestions to the modern food processor on how to achieve both economic and environmental benefits from eco-efficiency. Visit the project website www.ecoefficiency.com.au for more ideas and case studies.

The eco-efficiency for the Queensland food processing industry project is an initiative of the Department of Tourism, Regional Development and Industry and the Environmental Protection Agency with technical information provided by UniQuest through the UNEP Working Group for Cleaner Production.